Microsoft DevOps Solutions - Designing a Package Management Strategy

PACKAGE MANAGEMENT

Marcel de Vries
CTO

@marcelv https://fluentbytes.com

Outline

Exam objectives

What is package management

How to decompose your system

Package management solutions and features

- GitHub Packages
- Azure DevOps Artifacts

Managing the software supply chain

- Dependabot, Nukeeper, GreenKeeper

Summary

Exam Objectives Covered in This Course

Recommend package management tools

Design an Azure Artifacts implementation including linked feeds

Plan for assessing and updating and reporting package dependencies
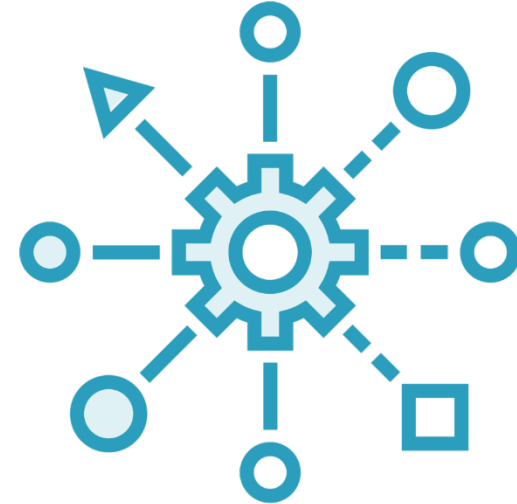
Design versioning strategy for code assets

Design a versioning strategy for packages

Design a versioning strategy for deployment artifacts

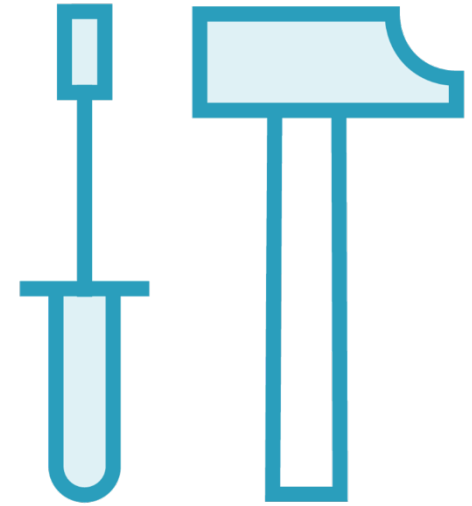# What Is Package Management

Software re-use

Decompose your system

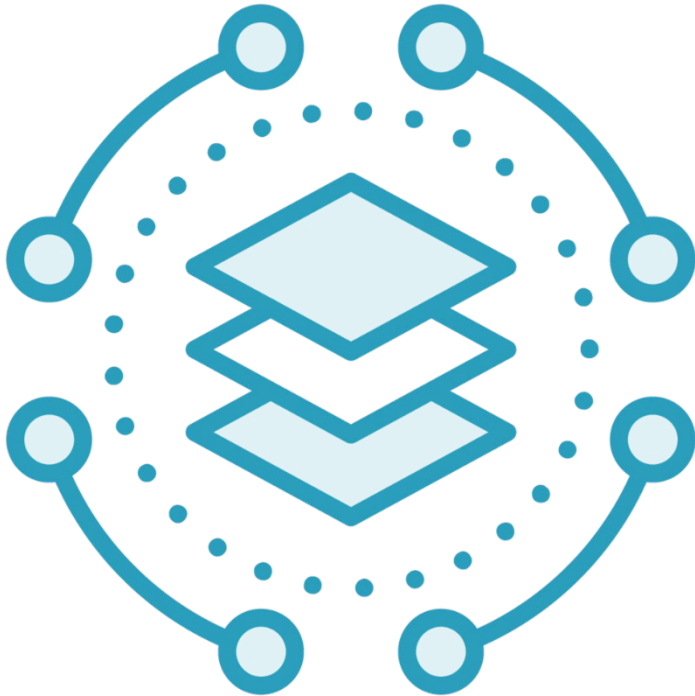# What Is Package Management

Package

Package Source

Package Manager Tool

What Is Package Management

WebPack, Parcel, Yarn (Web)

NPM (Java Script)

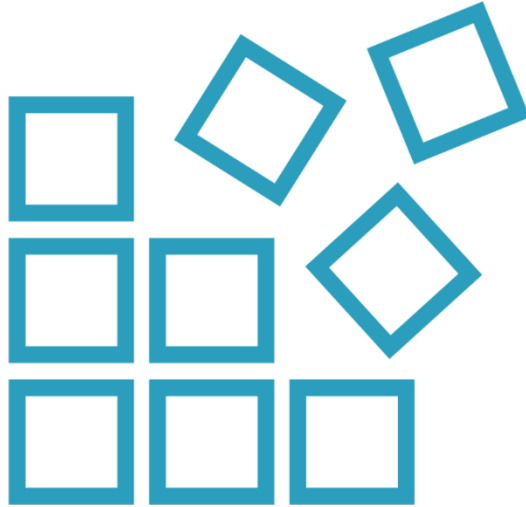Maven (Java)

NuGet (.NET)

RubyGems (Ruby)

PyPI(Python)

Upstream Proxy

Package cache   **Know what is used**   **Enforce policy**

Decompose Your System

Decompose Your System Wisely

Don't:

Not every Visual Studio project is a package!

Strive for low coupling and high cohesion.

Ask yourself:

Can I release, deploy and version this package independently

Is there a low change frequency and are the changes unrelated to other parts of the system

Can I carve this part out of the system using interfaces and dependency injection

Can the package exist on itself and does it have value to others

All yes -> candidate package

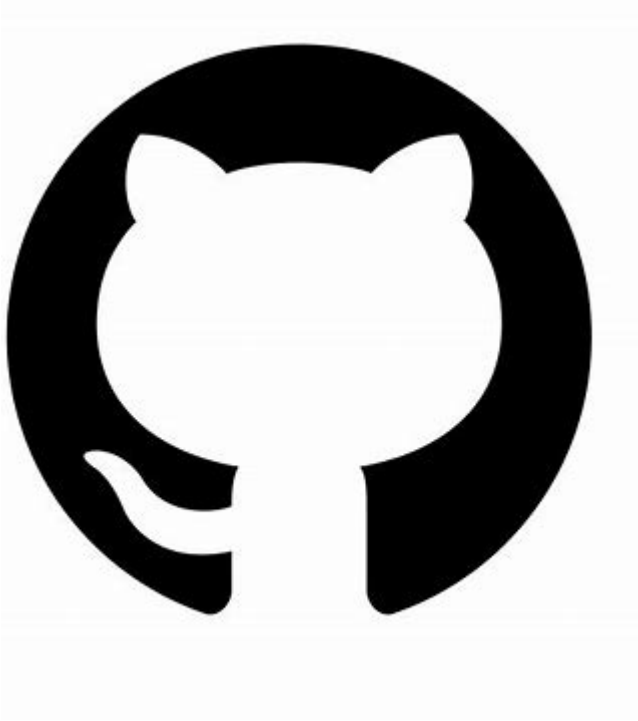# Package Management Solutions

Package Management Solutions

GitHub

Azure DevOps

Sonatype Nexus

JFrog Artifactory

GitHub Packages

GitHub can serve as a package registry

Supports multiple formats

- NPM, RubyGems, Maven, Gradle, NuGet

Package source format:

- PACKAGE-TYPE.pkg.github.com/OWNER/REPOSITORY/IMAGE-NAME
- Use access token to access packages

Demo

GitHub Packages

Azure DevOps Artifacts

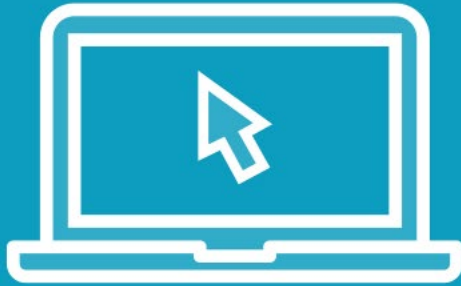**Azure DevOps supports package feeds**

- You can create multiple feeds
- You can authorize who can push packages
- You can use standard build tasks to publish to dev or stable feed
- You can cache upstream feeds

Support for multiple types

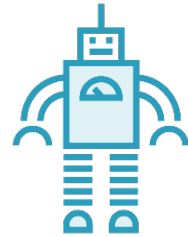- Maven, NuGet, Python, NPM, Universal

Demo

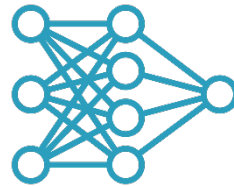## Azure DevOps Artifacts

Managing the Software Supply Chain

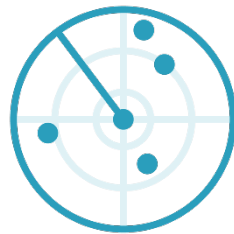**Keep all versions up to date**

Keep track of known vulnerabilities
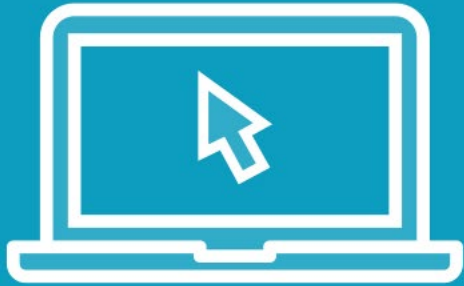
Automated Pull Requests

Dependabot

Nukeeper

Greenkeeper / Snyk

Demo

Using NuKeeper and Dependabot

Summary

Exam objectives

What is package management

How to decompose your system

Package management solutions and features

- GitHub Packages
- Azure DevOps Artifacts

Managing the software supply chain

- Dependabot, Nukeeper, GreenKeeper